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Combinatorial and Spectral Properties of Semigroups of Stochastic Matrices

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Abstract

© 2016, Springer Science+Business Media New York.The paper studies the notion of imprimitivity index of a semigroup of nonnegative matrices, introduced by Protasov and Voynov. A new characterization of the imprimitivity index in terms of the scrambling rank of a nonnegative matrix is suggested. Based on this characterization, an independent combinatorial proof of the Protasov–Voynov theorem on the interrelation between the imprimitivity index of a semigroup of stochastic matrices and the spectral properties of matrices in the semigroup is presented.

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